## 3.2 Medical Requirements Overview

**TABLE 3.2: MEDICAL REQUIREMENTS OVERVIEW**

| | |
|---|---|
| **MEDB# and Title:** | MEDB 2.4 Methicillin Resistant Staphylococcus aureus (MRSA) Nasal Screen and Suppression |
| **Sponsor:** | Medical Operations |
| **Discipline:** | Immunology/Infectious Disease |
| **Category:** | Medical Requirements (MR) |
| **References:** | Medical Evaluation Documents (MED) Volume B, Section 2.4 |
| **Purpose/Objectives:** | Personnel will perform microbiological evaluation of crewmembers to complement environmental monitoring of the ISS cabin environment to determine transfer or acquisition of Methicillin-Resistant *Staphylococcus aureus* (MRSA) and assess the presence of this microorganism in the environment. |
| **Measurement Parameters:** | Nasal Screen for Methicillin Resistant *Staphylococcus aureus* (MRSA) |
| **Deliverables:** | Pre-and Post-flight medical assessment test (MAT) report of results to Flight Surgeon |
| **Flight Duration:** | ≥ 30 days |
| **Number of Flights:** | All |
| **Number and Type of Crew Members Required:** | All primary ISS crewmembers. Back-up crew will only complete preflight MATs greater than L-30 days unless specifically waived by crew surgeon. If crew swap does occur, back-up crew will complete all preflight and post-flight MATs. |
| **Other Flight Characteristics:** | N/A |

## 3.3 Preflight Training - None

## 3.4 Preflight Activities

**TABLE 3.4: PREFLIGHT ACTIVITIES**

| | | | | |
|---|---|---|---|---|
| **Preflight Activity**<br>**Description:** | Testing at L-90/30 days will include a nasal screen for MRSA. Using a double ~~a single~~ swab, both nares will be sampled and positive isolates tested for antibiotic susceptibility. | | | |
| **Schedule:** | **Duration:** | **Schedule:** | **Flexibility:** | **Personnel Required:** |
| | Crew Microbiology - MAT 15 min | L-90/30 days | Contact lab if accommodation is needed outside existing schedule flexibility | Crewmembers/Lab Personnel |
| **Ground Support Requirements Hardware/Software** | **Preflight Hardware:** | **Preflight Software:** | **Test Location:** | |
| | Crew Sample Collection Kit (double culture swabs with liquid Stuart's Transport Media | N/A | U.S. | |
| **Testing Facilities** | **Minimum Room Dimensions:** | **Number of Electrical Outlets:** | **Temperature Requirements:** | **Special Lighting:** |
| | 8' x 10' (typical exam room) | N/A | Ambient | N/A |
| | **Hot or Cold Running Water:** | **Privacy Requirements:** | **Vibration/Acoustic Isolation:** | **Other:** |
| | Sink with hot and cold water to wash hands | | N/A | 1 table, 1 chair |
| **Constraints/Special Requirements:** | Specimens should be kept between 2°C and 25°C during transport if transport time will be less than 48 hours. . If transport time will be more than 48 hours, samples should be kept at 2-8°C during transport. Protect samples against freezing or exposure to excessive heat. | | | |
| **Launch Delay Requirements:** | Microbiology testing will be repeated at flight surgeon's discretion if launch is delayed. | | | |
| **Notes:** | | | | |
| **Data Delivery** | A final report will be transferred to the EMR 24-72 hours following sample receipt. | | | |

## 3.5 In-Flight Activities - None

## 3.6 Postflight Activities

**TABLE 3.6: POSTFLIGHT ACTIVITIES**

| | | | | |
|---|---|---|---|---|
| **Postflight Activity** | Testing at R+0 d (Perform at R+3 if sample cannot be collected at R+0) will include a nasal screen for MRSA. Using a double swab, both nares will be sampled and positive isolates tested for antibiotic susceptibility.<br>Testing at R+1 d for Direct Returning crewmembers will include a nasal screen for MRSA. | | | |
| **Description:** | | | | |
| **Schedule:** | **Duration:** | | **Schedule:** | **Personnel Required:** |
| | Crew Microbiology- MAT 15 min | | R+0 d<br>(Collect at R+3 d if sample cannot be collected at R+0)<br>(For direct return, collect in Crew Quarters at R+1) | Crewmembers/Lab personnel |
| **Ground Support Requirements Hardware/Software** | **Postflight Hardware:** | **Postflight Software:** | | **Test Location:** |
| | Crew Sample Collection Kit (double culture swabs with liquid Stuart's Transport Media | N/A | | Russia/U.S. |
| **Testing Facilities** | **Minimum Room Dimensions:** | **Number of Electrical Outlets:** | **Temperature Requirements:** | **Special Lighting:** |
| | 8' x 10' | 2 (U.S. 110V, Russia 220V) | Ambient | N/A |
| | **Hot or Cold Running Water:** | **Privacy Requirements:** | **Vibration/Acoustic Isolation:** | **Other:** |
| | Sink with hot and cold water to wash hands | Private room free of distractions | N/A | 1 table, 1 chair |
| **Constraints/Special Requirements:** | Post return, testing should occur, as close as possible, to R+0 to reflect ISS conditions, rather than terrestrial conditions. R+1 direct return samples are obtained at JSC Crew Quarters. For collection in Russia, specimens must be returned to JSC Microbiology Laboratory within 48 hours to the greatest extent possible. Specimens should be kept between 2°C and 25°C during transport if transport time will be less than 48 hours. If transport time will be more than 48 hours, samples should be kept at 2-8°C during transport. Protect samples against freezing or exposure to excessive heat. | | | |
| **Early Destow / Early Return:** | N/A | | | |
| **Notes:** | R+0 samples are collected in Russia and returned with other laboratory specimens on crew transport aircraft to Houston. R+1 direct return samples are collected at JSC Crew Quarters and processed in the JSC Microbiology Laboratory. | | | |
| **Data Delivery** | A final report will be transferred to the EMR 24-72 hours following sample receipt. | | | |

## 3.7 Summary Schedule

**TABLE 3.7: SUMMARY SCHEDULE**

| ACTIVITY | DURATION | SCHEDULE | FLEXIBILITY | BLOOD VOLUME | PERSONNEL REQUIRED | CONSTRAINTS |
|---|---|---|---|---|---|---|
| **Preflight Training - None** | | | | | | |
| **Preflight** | | | | | | |
| Crew Microbiology - MAT | 15 min | L-90/30 days | Contact lab if accommodation is needed outside existing schedule flexibility | N/A | Crewmember/Lab Personnel | • Nasal screening will take place at JSC. Specimens should be kept between 2°C and 25°C.. |
| **In-Flight Activity - none** | | | | | | |
| **Postflight -** | | | | | | |
| **ACTIVITY** | **DURATION** | **SCHEDULE** | **FLEXIBILITY** | **BLOOD VOLUME** | **PERSONNEL REQUIRED** | **CONSTRAINTS** |
| Crew Microbiology - MAT | 15 min | R+0 d (Perform at R+3 d if l sample cannot be collected at R+0) (For direct return, collect in Crew Quarters at R+1) | Contact lab if accommodation is needed to schedule | N/A | Crewmember/Lab Personnel | • Post return, testing should occur, as close as possible, to R+0 to reflect ISS conditions,<br>• R+1 direct return samples are obtained at JSC Crew Quarters. For collection in Russia, specimens must be returned to JSC Microbiology Laboratory within 48 hours to the greatest extent possible. Specimens should be kept between 2°C and 25°C during transport if transport time is less than 48 hours. If transport time will be more than 48 hours, samples should be kept at 2-8°C during transport. Protect samples against freezing or exposure to excessive heat. |
| **Postflight Debrief – N/A** | | | | | | |